IJBPAS, September, 2024, 13(9): 4266-4270

ISSN: 2277–4998

International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS)

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

THE ANTI-ANXIETY EFFECT OF MUSIC THERAPY ON PRE-OPERATIVE CARDIAC SURGERY PATIENTS – AN OBSERVATIONAL STUDY

AYANNA JS[1], RAMASAMY P[2], SOBANA R[3] AND RAJAKUMARI JC[4*]

1. Research scholar, School of Music Therapy, Institute of Salutogenesis and Complementary Medicine, Sri Balaji Vidyapeeth (deemed to be university), Puducherry, India
2. Associate professor, department of Cardiovascular surgery, Mahatma Gandhi Medical college and research institute, Sri Balaji Vidyapeeth, Puducherry, India
3. Professor, School of music therapy Institute of salutogenesis and complementary medicine Sri Balaji Vidyapeeth (deemed to be university), Pondicherry, India
4. Assistant Professor, School of Music Therapy, Institute of Salutogenesis and Complementary Medicine, Sri Balaji Vidyapeeth (deemed to be university) Puducherry, India

***Corresponding Author: Dr. Jenita Caren Rajakumari: E Mail: jenitacaren@gmail.com**

Received 18th July 2023; Revised 20th Sept. 2023; Accepted 1st Dec. 2023; Available online 1st Sept. 2024

https://doi.org/10.31032/IJBPAS/2024/13.9.8292

ABSTRACT

Anxiety is common among preoperative patients especially in cardiac cases. This study explores the use of Directed Music Imaging (DMI) as a Music Therapy (MT) intervention to reduce pre-operative anxiety in patients undergoing Coronary Artery Bypass Graft (CABG) surgery. The primary objectives were to assess anxiety levels and its impact on vital parameters. Four pre-operative MT sessions were administered, and pre-procedural anxiety levels were measured before the first and after the fourth session using the State-Trait Anxiety Inventory. Results showed a significant reduction in anxiety levels in both state and trait domains, as well as significant decreases in diastolic and systolic blood pressure in the first and fourth sessions. This suggests that DMI holds promise in managing pre-operative anxiety in CABG patients and may contribute to improved hypertension control. However, the study faced limitations, including use of pre-recorded music over live music, unpredictable scheduling of patients, and small sample size. Further research is needed to effectively understand the potential impacts of music on patient well-being in surgical settings. Implementing DMI as a complementary MT approach

in cardiac surgery settings could enhance patient outcomes and recovery experiences, warranting further validation and expansion.

Keywords: Anxiety, Directed Music Imaging (DMI), Coronary Heart Disease (CHD)

INTRODUCTION

Coronary Heart Disease (CHD) remains a prevalent global health concern, primarily caused by atherosclerosis or thrombosis, leading to blockages in coronary arteries **[1]**. Reduced blood flow to the myocardium compromises oxygen supply, resulting in CHD **[2]**. Despite its prevalence, CHD often goes undiagnosed until patients experience significant myocardial infarctions or worse, leading to substantial morbidity and mortality **[3]**. India, in particular, faces a significant burden, with millions of cases reported annually **[4]**.

Several risk factors contribute to CHD, some of which can be controlled, such as high blood pressure, cholesterol, smoking, diabetes, obesity, poor diet, and stress, while others are uncontrollable, including age, sex, family history, and race.[5] Surgical interventions, like Coronary Artery Bypass Graft (CABG), are commonly performed to address high-grade coronary artery blockages **[6]**.

Patients facing cardiac surgery experience elevated levels of anxiety due to the perceived risks associated with the procedure **[7]**. Anxiety in-turn adversely affects the patient's physiological response to anaesthesia and can exacerbate cardiac symptoms **[8]**. Moreover, anxiety and anxiety disorders have been linked to negative cardiovascular outcomes, making early diagnosis and treatment vital **[9]**. While pharmacological approaches, like benzodiazepines, are commonly used to reduce preoperative anxiety, they may cause adverse side effects **[10]**. As a result, Complementary and Alternative Medicine (CAM) therapies, including Music Therapy (MT), have gained attention for their potential benefits in promoting overall well-being, including anxiety reduction and relaxation **[11]**.

MT, an evidence-based practice, harnesses musical interventions to achieve personalized therapeutic goals **[12]**. Directed Music Imaging (DMI), a receptive technique within MT, utilizes conscious imagination to promote self-regulation and distract from psychological issues such as anxiety and stress disorders **[13]**.

This research aimed to explore the efficacy of DMI in MT as an adjunctive approach for managing pre-operative anxiety in cardiac surgery patients. By reviewing existing literature and conducting an observational study with patients undergoing CABG surgeries, this research endeavours to shed light on the potential benefits and underlying mechanisms of DMI in reducing

anxiety levels and regulating vital parameters. The findings of this study may contribute positively to future cardiac research and clinical practices, offering a non-pharmacological approach to enhance patient well-being and improve treatment outcomes in cardiac surgery settings.

MATERIALS AND METHODS

This research aimed to investigate the effects of Music Therapy (MT) on pre-procedural anxiety in cardiac patients scheduled for CABG surgery. The study involved adult cardiac patients above the age of 18, who were admitted to MGMCRI Hospital for CABG surgery. Eligible participants provided informed consent and expressed a willingness to receive MT.

The procedure involved baseline assessments, which collected demographic details, vital signs, clinical background, and surgical procedure details. Participants received four pre-operative sessions of MT interventions, which included vocal recreation, Directed Music Imaging (DMI), and pre-recorded relaxation meditative instrumental music. To ensure a safe and comfortable environment, sessions were conducted in a designated quiet room.

The primary outcome measure was the assessment of pre-procedural anxiety levels using the State-Trait Anxiety Inventory (STAI). The baseline STAI assessment was conducted before the first MT intervention and the post-intervention assessment after the fourth MT intervention. Vital parameters, including blood pressure and pulse rate, were assessed using the Dr Morepen BP 02 Blood Pressure Monitor and the Acturaa Fingertip Pulse Oximeter AP1325 before and after each session.

Data analysis was conducted using descriptive statistics to summarize demographic characteristics and baseline anxiety levels. The change in anxiety levels before and after MT interventions was analyzed using appropriate statistical methods, with a p-value of less than 0.05 considered statistically significant.

RESULTS AND DISCUSSION

This research aimed to assess the effectiveness of Music Therapy (MT) using the Directed Music Imaging (DMI) technique in managing pre-procedural anxiety in patients scheduled for Coronary Artery Bypass Graft (CABG) surgery. The study included 32 participants with a mean age of 57.38 years, and the majority of participants (50%) were in the 51-60 years age group. The gender distribution was 65.6% male and 34.4% female.

The results showed a significant reduction in pre-procedural anxiety levels as measured by the State-Trait Anxiety Inventory (STAI) scores. The mean state anxiety score decreased from 48.31 before the first session to 25.78 after the fourth session, while the mean trait anxiety score decreased from 40.81 to 23.34 during the same period.

Regarding vital parameters, there were significant changes in certain parameters such as BP, RR and SPO_2 after specific MT sessions. Systolic blood pressure showed a significant decrease up to a normal level after the fourth session, while diastolic blood pressure decreased up to a normal level after the first session but increased after the fourth session. The pulse rate did not show statistically significant differences before and after any session. The respiratory rate increased significantly up to normal levels in the first and fourth sessions, while oxygen saturation increased significantly up to normal levels in the first and third sessions.

The study on music therapy's impact on patients' well-being during CABG treatments has several limitations. The researcher's biased music selection, erratic scheduling, small sample size, absence of a control group, and pre-recorded music use could have influenced participants with different musical preferences. Live music could have provided more emotional and compelling experiences, but pre-recorded music may have been more effective. Additionally, unforeseen events like surgery postponements or insurance policies may have increased variability and made it difficult to identify common patterns. The small sample size raises questions about the statistical power of the study and the absence of a control group. These limitations should be considered when interpreting the findings, but they contribute to our understanding of the potential effects of music on patients undergoing surgical procedures. Further research is needed to better understand the association between music and patients' well-being in surgical settings.

CONCLUSION:

To conclude, MT employing DMI showed to be an effective strategy for lowering pre-procedural anxiety in CABG surgery patients. Although some important indicators (BP, RR, SPO2) did not consistently exhibit significant alterations (PR) throughout all sessions, improvements in specific parameters (BP, RR, SPO2) were detected following some sessions. These data show that MT may be a useful supplementary technique for reducing anxiety in cardiac patients prior to surgery. Larger sample sizes and controlled trials are needed to validate these findings and investigate the potential advantages of MT for cardiac patients.

Conflict of interest – NIL

Financial aid – NIL

All the authors have contributed significantly to qualify for authorship

Ethical issues - Yes – approved

REFERENCES

[1] Ulbricht TLV, Southgate DAT. Coronary heart disease: Seven dietary factors. The

Lancet. 1991;338(8773):985–92. doi:10.1016/0140-6736(91)91846-m.

[2] Sobel BE. Coronary artery disease. Coronary Artery Disease. 1990;1(1):2. doi:10.1097/00019501-199001000-00001.

[3] Solomon Ha, Edwards Al, Killip T. Prodromata in acute myocardial infarction. Circulation. 1969;40(4):463–71. doi:10.1161/01.cir.40.4.463.

[4] Krishnan MN. Coronary heart disease and risk factors in India – on the brink of an epidemic? Indian Heart Journal. 2012;64(4):364–7. doi:10.1016/j.ihj.2012.07.001.

[5] Hajar R. Risk factors for coronary artery disease: Historical perspectives. Heart Views. 2017;18(3):109. doi:10.4103/heartviews.heartviews_106_17.

[6] Hillis LD, Smith PK, Anderson JL, Bittl JA, Bridges CR, Byrne JG, *et al*. 2011 ACCF/AHA guideline for Coronary Artery Bypass Graft surgery. Circulation. 2011;124(23). doi:10.1161/cir.0b013e31823c074e.

[7] González Alcantud B, Díez Moreno D, Ye QL, López Tornero S, Pérez Álvarez I. Aplicación del Modelo area en cuidados Al Paciente con enfermedad de Ebstein Sometido a cirugía extracorpórea. Metas de Enfermería. 2022;25. doi:10.35667/metasenf.2022.25.1003081972.

[8] Olinda Oscco-Torres, Carmen E. Bendezú-Sarcines, Natividad Escajadillo-Lagosa. Actitud que adopta la enfermera durante la atencion y nivel de ansiedad del paciente en el pre operatorio en un hospital público de Pisco, Perú 2010. Revista Médica Panacea. 2019;1(3). doi:10.35563/rmp.v1i3.103.

[9] Celano CM, Daunis DJ, Lokko HN, Campbell KA, Huffman JC. Anxiety disorders and cardiovascular disease. Current Psychiatry Reports. 2016;18(11). doi:10.1007/s11920-016-0739-5.

[10] Koelega HS. Benzodiazepines and vigilance performance: A Review. Psychopharmacology. 1989;98(2):145–56. doi:10.1007/bf00444684.

[11] Mavraj G, Balouch B, Alnouri G, Sataloff RT. Alternative and complimentary medication use in singers: A pilot survey. Journal of Voice. 2022;Â.

[12] Kemper KJ, Danhauer SC. Music as therapy. Southern Medical Journal. 2005;98(3):282â€“8.Â.

[13] Koelsch S, Skouras S, Fritz T, Herrera P, Bonhage C, Küssner MB, *et al*. The roles of superficial amygdala and auditory cortex in music-evoked fear and joy. NeuroImage. 2013;81:49–60. doi:10.1016/j.neuroimage.2013.05.008.